

Singularities of the mean curvature flow of mean convex hypersurfaces

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Abstract: Hypersurfaces evolving by mean curvature flow can develop singularities in finite time due to curvature blowup. For certain classes, which satisfy suitable convexity conditions which are preserved by the flow, the singular behaviour is well understood. We will discuss the case of mean convex hypersurfaces, where it is possible to classify the possible asymptotic profiles obtained after rescaling near a singularity. For two-convex hypersurfaces, we can present a more detailed description of the singular regions, which is essential for the construction of a flow with surgeries to obtain topological applications.

References:

"Formation of singularities in the mean curvature flow" in "Mean curvature flow and isoperimetric inequalities" by M. Ritoré and C. Sinestrari, Birkhäuser CRM Series (2010).